REMARKS/ARGUMENTS

This application has been carefully reviewed in light of the Office Action dated May 25, 2004. Claims 1-2 and 4-13 remain in the application. Claims 1 and 11 are the independent claims. Claims 1 and 11 are amended. Claim 3 is cancelled without prejudice. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the present application are respectfully requested.

Art-Based Rejections

On page 2 of the Office Action, Claims 1-2 and 4-13 were rejected under 35 U.S.C. §102(f) over the Applicant 's Admitted Prior Art (AAPA).

The Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and the arguments below.

The Claims are Patentable over the AAPA

The present application is generally directed to semiconductor manufacturing technology and, in particular, to a dicing or scribing technique for separating or dividing a semiconductor wafer into chips or pellets.

As defined by amended independent Claim 1, a semiconductor device includes a dicing region provided on a semiconductor substrate to separate a plurality of semiconductor chips each having a gate portion from each other. The device includes a plurality of element isolation regions provided on a surface portion of the semiconductor substrate within the dicing region. The device includes a plurality of first dummy patterns formed on a surface of the semiconductor substrate between the plurality of element isolation regions, respectively. The plurality of first dummy patterns are formed independently in a direction intersecting a dicing direction. The device includes a plurality of second dummy

patterns formed above the semiconductor substrate within the dicing region so as to correspond to the plurality of first dummy patterns, respectively.

The applied reference does not disclose or suggest the above features of the present invention as defined by amended independent Claim 1. In particular, the applied reference does not disclose or suggest, "a plurality of first dummy patterns formed on a surface of the semiconductor substrate between the plurality of element isolation regions, respectively, the plurality of first dummy patterns being formed independently in a direction intersecting a dicing direction," as required by amended independent Claim 1.

On page 2, the Office Action purports that the Applicant's Admitted Prior Art (AAPA) teaches all the claimed limitations of the present invention. However, the Applicant respectfully disagrees with the Office Action.

In Fig. 1 of the AAPA, a structure is disclosed having a laminated film (104) provided on the dicing line (103). This laminated film (104) prevents an occurrence of dishing and has a width approximately equal to the width of the dicing line (103), i.e., a width in a direction orthogonal to the dicing direction. That is, this prior art simply discloses the laminated film (104) structured by laminating a gate oxide film (114), a polysilicon film (115), a WSi film (116), and a SiN film (117), respectively, on the first insulating film (111) of an element isolation region (112) corresponding to the dicing line (103). In the AAPA, one laminated film is merely formed on the dicing line in order to suppress dishing caused by CMP. Therefore, the AAPA disclosure is different from the present invention. Similarly, "a plurality of second dummy patterns (123) and (127)" indicated by the Office Action are the same as the third insulating film (123) and the fifth insulating film (127) formed on the laminated film (104), respectively. This teaching by the AAPA is different from "a plurality of second dummy patterns" of the present invention.

In contrast, according to the semiconductor device shown in FIG. 8 of the present application, a plurality of first dummy patterns (18) and a plurality of second dummy patterns (41) are isolated so as to be arranged individually from each other in units of a plurality of dummy patterns, in a direction orthogonal to the dicing direction, respectively, on at least one of the surface portion corresponding to the dicing region (10b) or its upper layer portion of the semiconductor substrate (10). In this way, by one aspect of the present invention, a large waste caused by a crack at the time of dicing, which causes defects, can be substantially prevented from occurring. That is, by dividing the laminated film (104 of FIG. 1) on the dicing line (2) into a plurality of portions independent from each other to form a plurality of first dummy patterns (18) on the surface, or by dividing the insulating film on the dicing line (2) into a plurality of portions independent from each other to form a plurality of second dummy patterns (41) on the surface, dishing is suppressed and stress which occurs at the time of dicing is dispersed, so that the insulating film is prevented from being largely cracked. The present invention provides a plurality of dummy patterns, which can dissipate the stress on the dicing line at the time of dicing, and not only dishing is improved, but also waste caused by crack generated at the time of dicing can be more minute.

Since the applied reference fails to disclose, teach, or suggest the above features as required by amended independent Claim 1, those references cannot be said to anticipate nor render obvious the invention, which is the subject matter of amended independent Claim 1.

Accordingly, amended independent Claim 1 is believed to be in condition for allowance and such allowance is respectfully requested.

The Applicant respectfully submits that amended independent Claim 11 is patentable over the applied references for at least the same reasons as those discussed above with reference to amended independent Claim 1.

The remaining Claims 2, 4-10, and 12-13 depend either directly or indirectly from amended independent Claims 1 and 11 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied reference. Therefore, the remaining Claims 2, 4-10, and 12-13 are also believed to be in condition for allowance and such allowance is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended herein, are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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